

Patent claims

1. A printer (1), in particular a printer (1) of a tachograph for a motor vehicle, having a housing (2), a printing unit (4), having a media unit (26) to hold the medium that can be printed, which media unit (26) can be moved relative to the printing unit (4) along an insertion curve describing an insertion direction (11) into an operating position and, counter to the insertion direction (11), out of an operating position, which media unit (26) can be at least partly removed from the housing (2), which media unit (26) can be locked in an operating position in the housing (2) by means of a locking unit (17), which locking unit (17) has at least one movable locking element (50) which can be moved into a locked position and into an unlocked position, the locking element (50) in the locked position engaging with at least one retaining element which is fixed to the housing (2), characterized in that the locking element (50) can be moved translationally transversely with respect to the insertion direction (11) into a locked position and into an unlocked position.
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2. The printer as claimed in claim 1, characterized in that the printer has two retaining elements arranged with a spacing from each other which, in the locked position, engage with at least one locking element.
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3. The printer as claimed in at least one of the preceding claims, characterized in that the locking unit has a first resilient element, which pushes or pulls the locking element into the locked position and prestresses it.

4. The printer as claimed in at least one of the preceding claims, characterized in that the locking unit (17) has a slide-mounted carriage, which carries at least one locking element and can be moved into a locked position and into an unlocked position.
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5. The printer as claimed in at least one of the preceding claims, characterized in that at least one locking element is fixed to the carriage and extends substantially perpendicular to the direction of movement of the carriage.
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6. The printer as claimed in at least one of the preceding claims, characterized in that the locking elements fixed to the carriage have at least two contact regions, with which they bear on the retaining elements in the locked position, the direction of the spacing between the two contact regions describes a straight line running substantially perpendicular to the direction of movement of the carriage.
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7. The printer as claimed in claim 6, characterized in that the carriage is slide-mounted on at least one sliding plane and the sliding plane extends between the two contact regions, so that at least one locking element is arranged on both sides of the sliding mounting of the carriage.
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8. The printer as claimed in claim 7, characterized in that the two contact regions are located substantially on a single straight line described by a normal to the sliding plane of the carriage.
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9. The printer as claimed in claim 6, 7 or 8, characterized in that the media unit is mounted such that it can be displaced along the insertion curve in guides, the direction of the spacing between the two contact regions of the locking unit extends substantially in the direction of the normal to the tangential plane described there by the guides.

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10. The printer as claimed in at least one of the preceding claims, characterized in that the media unit has an operating front facing the user, into which an operating element of the locking unit is integrated, by means of which the locking unit can be moved into a locked position and into an unlocked position.

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11. The printer as claimed in at least one of the preceding claims, characterized in that the locking unit has a cylindrical shape and the cylinder longitudinal axis runs perpendicular to the direction of movement.

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12. The printer as claimed in at least one of the preceding claims, characterized in that the movable locking element (17) on the media unit (26) is a fixed component part of the media unit (26).

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13. The printer as claimed in at least one of the preceding claims, characterized in that the stationary retaining element is permanently connected to the housing (2) and interact in a locking manner with the locking elements (17) on the media unit (26).

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14. The printer as claimed in at least one of the preceding claims, characterized in that the retaining element has at least one hook-like slotted guide, along which the locking elements (17) move as they move into the locked position.

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15. The printer as claimed in at least one of the preceding claims, characterized in that the movable parts of the locking unit interact with a sensor which registers a locked position, in which the media unit (26) or the carrier (10) and the printing unit (4) are fixed in relation to each other in the direction of the spacing and/or an unlocked position, in which the media unit (26) or the carrier (10) and the printing unit (4) are not fixed in relation to one another in the direction of the spacing.

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16. The printer as claimed in at least one of the preceding claims, characterized in that the printing unit (4) can be moved in the housing (2) within a movement play, in that means for aligning the printing unit (4) with the media unit (26) are provided, so that the printing unit (4) and the media unit (26) are aligned in relation to each other when the media unit (26) is inserted in the insertion direction (11).

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17. The printer as claimed in at least one of the preceding claims, characterized in that the printing unit (4) can be moved in the housing (2) in the insertion direction (11) and counter to the insertion direction (11) and/or transversely with respect to the insertion direction (11) to the extent of a substantially horizontal movement play.

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18. The printer as claimed in at least one of the preceding claims, characterized in that the printing unit (4) can be moved transversely with respect to the insertion direction (11) in the housing (2) to the extent of a substantially vertical movement play.
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19. The printer as claimed in at least one of the preceding claims and/or as claimed in claim 15, characterized in that the horizontal movement play in the insertion direction (11) and/or transversely with respect to the insertion direction (11) is in each case between 0.5 mm and 1.5 mm.
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20. The printer as claimed in at least one of the preceding claims and/or as claimed in claim 17, characterized in that the vertical movement play transversely with respect to the insertion direction (11) is between 0.2 mm and 0.5 mm.
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21. The printer as claimed in at least one of the preceding claims, characterized in that the printing unit (4) is mounted in a floating manner in the housing (2).
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22. The printer as claimed in at least one of the preceding claims, characterized in that the printer (1) has at least one second resilient element (13), which pushes or pulls the printing unit (4) counter to the insertion direction (11) with a force (14), so that the force (14) urges the printing unit (4) against the media unit (26) when the latter is inserted.
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23. The printer as claimed in claim 21, characterized in that the locking unit (17) has at least two retaining elements, which are arranged symmetrically with respect to the second resilient element (13).
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24. The printer as claimed in at least one of the preceding claims, characterized in that the second resilient element (13) is designed in such a way that it prestresses the printing unit (4) in the housing (2) against stops limiting the movement play when the media unit is not in the operating position, so that the printing unit is always located in a defined position in the absence of the media unit.

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25. The printer as claimed in at least one of the preceding claims, characterized in that the printer has at least one guide, which has at least two first guide elements (19a, 19b), which are arranged on the media unit (26), and has two second guide elements (20a, 20b), which correspond to the first guide elements (19) on the media unit (26), so that, during a movement in or counter to the insertion direction (11), the media unit (26) is guided by means of the guide.

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26. A tachograph having a printer (1) as claimed in at least one of the preceding claims.

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